

CLAIMS

1. Vertebral fixing device for treating spondylolisthesis which has a screw that has a spherical head designed for fixing to a bone, a tulip that incorporates vertical notches aligned with each other in which a bar is placed, forming a link between screws of other devices and an interior threaded section into which fits a closing screw that rests on the bar and moves a locking cap, essentially wherein the tulip has a cavity inside and below, delimited by an upper spherical wall and a lower conical wall in which a rosette is located, formed by an upper protuberance that has a conical section ending at the top with another cylindrical section that serves to guide the movement axially inside the tulip and which on its upper face has a series of flexible slats arranged down from the upper protuberance, separated by slots that form a housing in which the head of the screw is housed and which has free polyaxial orientation movement, there being a threaded section located next to the cavity in which a tightening screw moves, acting on the upper face of the upper protuberance of the rosette to close the slats by pressure on them against the conical wall, slats which in turn will press against the head of the screw to fix it in position.
2. Vertebral fixation device for treating spondylolisthesis according to claim 1 wherein the tulip includes two transverse drillings aligned with the position of the upper protuberance of the rosette inside the tulip which facilitates the insertion of tools to act on the upper protuberance and raise the rosette which is thus disconnected from the head of the screw allowing the latter to be removed.
3. Vertebral fixation device for treating spondylolisthesis according to claim 1 wherein the closing screw has a cavity in its upper face into which the relevant tool is inserted to facilitate the rotation that causes the vertical movement of the locking cap connected to the closing screw by means of folded fins housed in an opening in the closing screw, with circular holes being defined in the side wall of the locking cap that rest on the bar in the guided movement of the latter in the vertical notches in the tulip.
4. Vertebral fixation device for treating spondylolisthesis according to claim 1 wherein the tightening screw has an upper cavity that allows the insertion of the

relevant tool to facilitate its rotation.

5 5. Vertebral fixation device for treating spondylolisthesis according to claim 1 wherein the locking cap has recesses defined by the effect of the folding of the fins, that facilitate the passage of the tulip element to allow it to protrude above, while the fins slide inside the vertical notches in the tulip.

10 6. Vertebral fixing device for treating spondylolisthesis according to claim 1 wherein the tulip has polyaxial orientation.

10 7. Vertebral fixing device for treating spondylolisthesis according to claim 1 wherein the screw, the tulip and the bar, suitably tightened, together with the screws, tulips and bars of other devices fixed to the vertebrae form a single block that does not allow the movement of any of the vertebrae.

15 8. Vertebral fixing device for treating spondylolisthesis according to claim 1 wherein the fins are housed in vertical notches preventing the opening of the tulip when the pressure is applied to the device with the closing screw in order to tighten the device or devices.